

17.11	Stable at 50°C. Slight liquid on top at 55°C, but retained original shape	Translucent after 6 weeks. Very slight domain texture was visible.
17.C1	Stable at 40°C. Soft and slightly leaky at 45°C. Totally melted at 50°C	Mottled, opaque and leaky after 2 weeks, and had totally collapsed after 3 weeks.
17.C2	Stable at 45°C. Totally melted at 50°C	Mottled and opaque after 4 weeks
17.C3	Stable at 45°C. Soft and leaky at 47°C. Totally melted at 49°C	Minor mottling and leakage after 2 weeks. Completely mottled and opaque after 3 weeks.
17.C4	Stable at 47°C. Totally melted at 49°C	Minor mottling after 3 weeks. Completely mottled and opaque after 4 weeks.

Side by side comparison of the Example 17 and Comparison 17C formulations shows that the comparison formulations melted at a lower temperature and became opaque and mottled during storage periods at which the invention formulations were still translucent, thereby demonstrating the superior stability of the invention formulations. The crystallisation test does not indicate the maximum period of time for which any of the invention formulations could remain translucent,

- 80 -

because it no instance was it continued until an invention stick became opaque.

Measurement of Properties

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i) Hardness of stick using a penetrometer

The hardness and rigidity of a composition which is a firm solid can be determined by penetrometry. If the composition is a softer solid, this will be observed as a substantial

10 lack of any resistance to the penetrometer probe.

A suitable procedure is to utilise a lab plant PNT penetrometer equipped with a Seta wax needle (weight 2.5 grams) which has a cone angle at the point of the needle specified to be $9^{\circ}10' \pm 15''$. A sample of the composition with a flat upper surface is used. The needle is lowered onto the surface of the composition and then a penetration hardness measurement is conducted by allowing the needle with its holder to drop under a total weight, (i.e. the

15 combined weight of needle and holder) of 50 grams for a period of five seconds after which the depth of penetration is noted. Desirably the test is carried out at a number of points on each sample and the results are averaged.

Utilising a test of this nature, an appropriate hardness for

25 use in an open-ended dispensing container is a penetration of less than 30 mm in this test, for example in a range from 2 to 30 mm. Preferably the penetration is in a range from 5mm to 20 mm.

- 81 -

In a specific protocol for this test measurements on a stick were performed in the stick barrel. The stick was wound up to project from the open end of the barrel, and then cut off to leave a flat, uniform surface. The needle was carefully lowered to the stick surface, and then a penetration hardness measurement was conducted. This process was carried out at six different points on the stick surface. The hardness reading quoted is the average value of the 6 measurements.

ii) Deposition and whiteness of deposit

Another test of the properties of a composition is the amount of the composition which is delivered onto a surface when the composition is drawn across that surface (representing the application of a stick product to human skin). To carry out this test of deposition, a sample of the composition with standardised shape and size is fitted to apparatus which draws the sample across a test surface under standardised conditions. The amount transferred to the surface is determined as an increase in the weight of the substrate to which it is applied. If desired the colour, opacity or clarity of the deposit may subsequently be determined.

A specific procedure for such tests used apparatus to apply a deposit from a stick onto a substrate under standardised conditions and then measures the mean level of white deposits using image analysis.

The substrate used was